

# **Boulder's Carbon Tax: Building a Foundation for Community Climate Action**

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## **ABSTRACT**

The city of Boulder's adoption of the Kyoto Protocol goals to reduce greenhouse gas (GHG) emissions translates to a 22% reduction below current emission levels for Boulder by 2012. The adoption of the Climate Action Plan (CAP), which is a blueprint to achieve these goals, and the passage of the nation's first carbon tax, is building the foundation for local action. The carbon tax, collected on electricity use, directly funds the CAP programs and comprises an innovative approach to reducing the community's emissions through programs based on voluntary participation, regulations and incentives.

The CAP and associated ClimateSmart campaign engage and motivate the community to take action to reduce GHG emissions. Energy conservation, energy efficiency, and renewable energy in buildings—plus efficient transportation—are the cornerstones of the plan. Collaboration is an important component of an effort of this magnitude. The CAP programs educate by connecting residents and businesses with the resources they need to make informed choices, facilitating voluntary action.

While the CAP tax has provided funding for the city to establish successful programs aimed at GHG emission reductions, challenges still exist in trying to achieve the goals laid out in the CAP. These challenges have motivated staff to consider new and creative options for working with the community.

This paper introduces Boulder's process to develop a comprehensive Climate Action Plan, summarizes the political process to create a dedicated revenue source to fund the CAP programs, and highlights select CAP strategies, successes, challenges, and possible future directions.

## **Introduction**

Boulder is a college town in Northern Colorado known for its beautiful mountain landscapes. Boulder has approximately 100,000 residents, including resident students at the University of Colorado. Boulder is also home to many federal laboratories, such as the National Center for Atmospheric Research (NCAR) and the National Oceanic and Atmospheric Administration (NOAA), high-tech companies, energy and environmental consultants, and natural lifestyle companies. The community has a strong and long-lived interest in environmental protection, as is shown by its commitment to preserving open space, recycling and waste diversion, promoting the natural and organic products industry, and maintaining a high quality of life. (Brouillard & Van Pelt 2007)

In the absence of federal action to address GHG emissions, the city of Boulder adopted the goals of the Kyoto Protocol in 2002 to reduce GHG emissions. This goal translates to a 22% reduction below current emission levels by 2012. This 2002 GHG goal led to the development of a Climate Action Plan (CAP) and a carbon tax to fund the plan, both accomplished in 2006.

The CAP and carbon tax comprise an innovative approach to reducing the community's emissions through programs based on voluntary participation. Implementing the CAP means putting in place innovative efficiency and sustainability initiatives to promote community-wide action and market transformation, which support conservation, energy efficiency and renewable energy.

### **History: The Road to Boulder's Climate Action Plan**

Following the city's adoption of the Kyoto Protocol goals, a group of residents, stakeholders, energy experts, and city staff, known as the Boulder Renewable Energy and Energy Efficiency working group (BREEE), convened to analyze possibilities and create an initial report detailing what it will take the city to meet these goals. The report was an important first step at defining the scale of the challenge and highlighting potential opportunities to save energy and reduce emissions (BREEE 2003). Also, it was successful in helping to catalyze city action and commitment to developing a comprehensive emissions reduction program (Brouillard & Van Pelt 2007).

In 2004, City Council appropriated \$100,000 dedicated to funding the city's GHG reduction efforts. This initial funding went to hire a local firm to complete a GHG emissions inventory consistent with international standards for tracking emissions and for staff to begin offering the city's first energy efficiency programs. In the following year, Council dedicated two years of bridge funding for these efforts through the city's trash tax at \$258,000 per year (Brouillard & Van Pelt 2007).

Through extended and additional funding provided by the trash tax, the city expanded implementation of energy efficiency programs and convened a Climate Action Plan Committee (CAPC) to guide the development of the CAP. The city considered GHG reduction programs implemented in other communities and estimated the costs and potential emissions reductions. The estimates took into account costs to the city, homeowner or business, available utility rebates and the economic benefit to the community of energy cost savings. The CAPC provided technical and policy guidance for CAP development.

### **Securing Funding: The Carbon Tax**

The city hired a consultant to explore options for a longer term funding source. Through this process, the option that represented the closest nexus to the goal of reducing GHG emissions was a tax on electricity use or a carbon tax. Xcel Energy, the investor-owned utility serving Boulder, agreed to collect the charge on Boulder's behalf on the condition that it was approved by the voters. On November 7, 2006, 60% of Boulder voters approved Initiative 202, the Climate Action Plan Tax, marking the first time in the nation that a municipal government imposed an energy tax on its residents to directly combat climate change. (Brouillard & Van Pelt 2007; Kinney et al. 2007) The carbon tax began on April 1, 2007. Currently, the tax generates approximately \$860,000 per year for implementation of programs to reduce Boulder's GHG emissions.

## Greenhouse Gas Inventory

The primary data sources for the city of Boulder's greenhouse gas inventory are community electricity and natural gas consumption, the University of Colorado operations and generation, annual vehicle miles traveled within city limits, tons of garbage sent to the landfill, and offsets from the purchase of renewable energy, such as wind power. In 2006, the city released 1,887,596 metric tons carbon dioxide equivalent (mtCO<sub>2</sub>e). Table 1 shows the GHG emissions by energy source and sector and indicates that the vast majority of the city's emissions are a result of electricity use. The community must reduce GHG emissions by 406,489 tons from 2006 levels by 2012 in order to meet the goals of the CAP. This represents a 22% decrease from 2006 levels. Table 1 also shows the percentage of GHG emissions by both sector and source for 2006. The inventory is updated annually in June.

**Table 1. Boulder's 2006 Greenhouse Gas Emissions by Energy Source and Sector Source**

Energy sources	Percent	Sector sources	Percent
Electricity	61	Commercial and Industrial	58
Transportation	22	Transportation	22
Natural gas	14	Residential	17
Solid waste	3	Solid waste	3

Source: Afflerbaugh et al. 2008

## Current Strategies

The CAP intends to provide services in the community that facilitate action by connecting residents and businesses to existing resources, developing and implementing policies and programs that fill important gaps, and providing information to help the community make smart energy choices. Wherever possible, the CAP team promotes existing external resources, such as Xcel Energy's energy efficiency and solar rebates and state weatherization funds. This approach optimizes the carbon tax budget further than providing direct financing for installing efficiency measures in private buildings.

In 2007, many existing programs that were started with trash tax funding were expanded and several new programs and services were implemented through the new carbon tax. Highlights from 2007 include: doubling the number of commercial building energy assessments to 35 businesses, expanding the residential home energy audit program more than tenfold, serving 220 homes, holding a second neighborhood SWEEP to provide energy efficiency kits and information to over 600 households, providing a subsidy for or distributed 15,000 energy-efficient compact fluorescent lights (CFL), and forming the Climate Action Plan Advisory Group (CAPAG), comprised of local technical experts and stakeholders to provide input on CAP implementation and an evaluation of options for increasing emissions reductions.

## ClimateSmart Campaign

A key strategy of the CAP is effective marketing of programs and initiatives to inspire voluntary behavior change and investment with regard to conservation and energy efficiency and purchasing choices. Fundamental to this effort is the ability to link personal actions, such as driving and home energy use, to climate change and energy sustainability. The goal is to make

this link ubiquitous and sustained in the Boulder community, such that there is a constant reminder that climate action is in large part the responsibility of individuals through their behaviors and purchase decisions.

The CAP team worked with a local communications firm to execute campaign branding. ClimateSmart was selected as the campaign name. The new branding paved the way for development of the ClimateSmart website ([www.beclimatesmart.com](http://www.beclimatesmart.com)), program brochures, local print and bus ads, radio, and other communications initiatives. The ClimateSmart campaign is intended to symbolize the city of Boulder's response to climate change, and to foster awareness of available programs facilitates residents' and businesses' ability to reduce GHG emissions. Boulder County has embraced the ClimateSmart campaign and has made an effort to include all local communities, and to develop a regional collaboration through the Boulder County Consortium of Cities.

**Figure 1. Climate Smart Logo**



### **ClimateSmart at Work**

ClimateSmart at Work is the umbrella name for programs associated with the commercial and industrial sectors; these sectors account for 58% of Boulder's total GHG emissions. The ClimateSmart at Work programs offers a challenging balance of working closely with the business community to reduce GHG emissions, while at the same time supporting a vibrant business climate.

The primary program offered through ClimateSmart at Work is the Building Performance Program (BPP). The program's primary objectives are to increase efficiency in Boulder's commercial buildings, raise awareness of utility rebates, and better understand the energy-related support needs of the commercial sector. The BPP provides energy audits and other energy analysis programs for local businesses.

The energy audits provide a valuable resource to the commercial sector by projecting the potential savings for a facility upon implementing the recommendations. A future focus for this program is to develop stronger relationships with the business sector to encourage and facilitate the maximum number of retrofits possible; since an important outcome for this program is that an energy audit translates into retrofits and actual GHG reductions. (Afflerbaugh et al. 2008)

### **ClimateSmart at Home**

ClimateSmart at Home is the umbrella name for programs associated with the residential sector. This sector accounts for 17% of Boulder's total GHG emissions. While the emissions for this sector are much less than the commercial and industrial sectors, CAP efforts are focused largely in this area since there currently are fewer tax incentives and utility resources in this sector.

Most of the budget is devoted to improving energy efficiency because this is the most cost-effective strategy to reduce green house gas emissions. Often, residential programs include grassroots elements, where actions are promoted and implemented on a neighborhood or block-by-block level. Sample programs in this sector include a reduced cost residential energy audit program, Home Performance with ENERGY STAR contractor training, income-qualified weatherization, an LED holiday light exchange, a Home Energy Makeover Contest, and a whole-house energy monitor loan program.

The primary program in this sector is the Residential Energy Audit Program (REAP). The aim of the program is to identify elements of dwellings that need to be retrofitted—fixed, modified, replaced, adjusted—in order to raise energy efficiency, increase comfort, or increase the safety of the home (Kinney et al. 2007). This program is growing from a pilot of 15 audits in 2006, 220 audits in 2007, to a plan for 450 audits in 2008. A local energy consultant, Synertech Systems Corp. conducted a formative analysis of the program in 2007 that details many recommendations for improvement, many of which are happening in 2008 (Kinney Clute & Cler 2007).

### **ClimateSmart on the Road**

Transportation accounts for approximately 22% of GHG emissions in Boulder. The CAP identifies three overall strategies to reduce transportation sector GHG emissions: reduce vehicle miles (VMT), increase the use of biofuels, and increase the aggregate fuel economy of vehicles in Boulder. Initial work focused on refining the GHG inventory and strategies for the sector, supporting fuel retailers interested in selling biofuels, and working with the city's transportation department office, GO Boulder, on travel demand management programs.

Reducing VMT is an important strategy for reducing emissions and is addressed through implementation of the city's Transportation Master Plan (TMP). In order to enhance VMT reduction efforts, the CAP team has made efforts to incorporate GHG reduction strategies into existing and planned city Transportation Department initiatives.

The CAP team is also collaborating with the transportation department on a pilot Individualized Marketing Campaign to facilitate increased use of alternative transportation modes. Results will be collected and analyzed in 2008 to determine if the program should be expanded throughout the community. The CAP team and GO Boulder are also developing commute trip reduction outreach to help employers develop commute trip reduction programs. This will be combined with outreach and assistance on developing green fleet programs, and taking action to increase energy efficiency, water conservation and waste reduction.

### **Successes**

The CAP team views the time since the CAP tax began collection – April 1, 2007 – as a period of building the foundation for this work in Boulder. This community has never had municipal energy efficiency programs nor the strength of four people dedicated to engaging the community in understanding the link between energy and greenhouse gas emissions. The momentum behind these efforts is just beginning to take hold in the community. The current programs are gaining in popularity and the recognition of the ClimateSmart brand is getting stronger.

## Collaboration

Collaboration is a key to successful CAP programs. Leveraging community partner resource, dollars, and expertise has helped create much stronger programs. One key partner that the CAP is collaborating with is our utility, Xcel Energy. Through recent legislation, Xcel is required to meet certain goals in relation to demand side management (DSM) and renewable energy. Fortunately, the DSM programs also result in energy savings that will help Boulder meet its goals.

**Demand side management.** The CAP assumed that Xcel's DSM programs and rebates would be integral to incentivizing investment in energy efficiency (Climate Action Plan 2005). Currently, incentives are available for measures such as installing evaporative coolers in residences or lighting upgrades in commercial buildings. ClimateSmart at Work and at Home programs work to connect businesses and residents to these rebate opportunities.

In 2007, Xcel submitted a proposal to nearly double the energy use reduction impact (Xcel Energy 2007). If approved as proposed, expanded DSM offerings would be implemented in 2009 with new electricity use incentives, as well as rebates for reducing natural gas consumption. The city has used Xcel Energy and Boulder County's Sustainable Energy Plan estimates to project a GHG impact of 22,208 tons in 2012, representing 5.5% of the GHG target (Xcel Energy 2007; Boulder County 2007).

**Smart grid.** Another exciting offering by Xcel was announced in March 2008 when Xcel Energy named Boulder as the first "Smart Grid" city in the nation. According to a recent white paper by Xcel Energy, a Smart Grid will allow:

"The opportunity to develop a fully inter-connected system allowing customers to automatically manage their energy consumption and enabling Xcel Energy to reliably produce and deliver that energy through real-time automated controls."(Xcel Energy 2008 1)

In addition to the first-phase projects that will help the utility manage the grid with features such as smart substations, distribution assets, and outage management, end-users can expect to see programs such as plug-in hybrid electric vehicles and a consumer web portal where customers can program or pre-set their energy use (Xcel Energy 2008). The Smart Grid has the potential to promote behavior change by providing residents with real-time feedback on their electricity usage. The city is working with Xcel to ensure maximum success of the Smart Grid City project.

**Regional efforts.** Since finalizing the CAP, complimentary regional and state-level initiatives have grown to a point where collaboration is paramount to success. The Boulder County Energy Strategy Task Force (ESTF) was recently formed to prioritize and address sustainable energy issues among Boulder County, city and town governments. The ESTF released a Sustainable Energy Plan (SEP) in late 2007 detailing programs and analysis for countywide GHG emissions reductions (Boulder County 2007).

In November 2007, Governor Bill Ritter was elected to lead the state of Colorado. One of Governor Ritter's main platforms is a new energy economy with energy efficiency and renewable energy at the top of the list. In support of these goals, a \$7 million Clean Energy Fund has been allocated to the newly structured Governor's Energy Office (GEO). The GEO is

positioned to lead the way on state level programs and initiatives. Many matching fund programs initiated through GEO are already in progress through the CAP such as incentives for insulation and air sealing, a solar domestic hot water rebate, and an ENERGY STAR for new homes program.

### ClimateSmart at Work

For 2007, staff set an initial target of 35 audits and an efficiency project implementation goal of 500,000 kWh and we were able to achieve this goal. We anticipate achieving significantly more savings from these audits as the businesses have more time to budget and plan for the upgrades.

**Table 2. Results of 2007 ClimateSmart at Work**

Results	2007
Buildings Audited	35
Potential Electrical Savings (kWh)	4,296,469
Potential Natural Gas Savings (Therms)	16,145
Potential Annual Energy Cost Savings	\$341,944
Actual Natural Gas Savings (Therms)	11,638
Actual Electrical Savings (kWh)	612,300
Actual GHG reductions (mtCO <sub>2</sub> )	632

Source: Afflerbaugh et al. 2008

**Trade ally network.** Staff established a Trade Ally Network consisting of commercial contractors who can implement the energy efficiency and renewable energy recommendations from the energy audit. This network has grown from 5 original members to 16 currently. These contractors promote the city of Boulder programs and in turn the city promotes these members to the businesses who have received audits. This network has succeeded in not only educating contractors about energy efficiency programs but has also made it easier for businesses to find the appropriate contractors for implementation efforts.

### ClimateSmart at Home

Data from the REAP program is currently being collected to analyze the greenhouse gas reductions achieved 13 months post-energy audit. Preliminary results from 25 homes show an average of 1.3 mtCO<sub>2</sub>e annual reduction per home or 8% natural gas and 9% electricity reductions per home. It is expected that data collected after more time has passed will show greater reductions since the current collection of data does not consider when actual implementation of measures took place. We are currently exploring ways to gauge the time between audit and implementation and how best to capture these results.

The CAP originally estimated an average of 20% natural gas and 8% electricity reductions per home. The natural gas reductions are not as high as expected but these results are preliminary. We expect that natural gas emissions reductions will increase as data collection is trued up more closely with actual implementation. Additionally, since the carbon intensity of Boulder’s electricity is much higher than natural gas, the GHG reductions are close to original

expectations. We are confident that at least an average of 20% natural gas reductions are possible based on past data collected from local weatherization programs.

## **Neighborhood Groups**

With growing awareness of climate change and energy conservation issues, many Boulder residents are engaged in taking action locally to curb their greenhouse gas emissions. A few of Boulder's existing neighborhood organizations have spun off to organize grassroots groups committed to cultivating community and educating their neighbors on how to lower their carbon footprint. Examples of events are solar home tours, skills trading events, bringing in expert speakers, and screening movies such as *An Inconvenient Truth*. The CAP staff has been working with these various groups around town to support their efforts and provide resources.

## **Challenges and Lessons Learned**

Since the CAP was written in 2005, the city has had a chance to evaluate the current course of action. While it is too early to do a course correction – many programs need a minimum one year of post-implementation data to measure true energy savings – there is still momentum behind analyzing where there is room for improvement. The following sections detail some of the barriers the programs have encountered.

**Supporting market transformation.** The CAP aims to support market transformation through promoting contractor training in building science and looking at our buildings as systems. With programs such as the REAP, feedback from the community has revealed that offering a low-cost audit can undervalue energy audits in the market and compete with other auditors. Additionally, subsidizing an audit without an incentive for implementation does not guarantee that the CAP will meet its goals. The program is being re-evaluated to create a structure which would remove the low-cost audit from market and offer a tiered rebate for market rate audits depending on the level of implementation that takes place. With the amount of local incentives growing for energy efficiency improvements, programs can offer a package to residents to help leverage local resources while supporting the market to expand services related to energy audits and building science.

In support of this process, the CAP will move towards focusing resources on building science trainings and building a network of certified trade professionals who are skilled to complete the energy efficiency work needed in the existing building stock. A local non-profit trade organization, the Boulder Green Building Guild (BGBG) has a close relationship with the city. Initial plans are being explored on how to maximize the existing resources through the BGBG, offer more training and education and possibly a certification program.

**Tenant/Landlord split incentive.** The tenant/landlord split incentive occurs for a large portion of the business community where much of the commercial space is leased. Tenants often do not have the incentive to implement any of the energy efficiency recommendations from an audit either because they are in a short term leasing situation or they are prohibited from making building improvements. On the other hand, landlords are hesitant to make improvements because they are not paying the energy bills. We have tried a number of strategies to overcome



this barrier, but it remains our greatest challenge. Some additional options being explored to address this barrier include “green leasing” programs, zero interest financing for energy efficiency improvements, and regulatory codes.

**Cost.** Cost of implementing energy efficiency improvements remains a barrier, especially as the market trends towards a recession. Our programs provide clear cost estimates and paybacks for the energy efficiency improvements to demonstrate the financial case. However, as capital and operational budgets are often not connected, businesses struggle with appropriating the capital funding for projects. Rebates from Xcel Energy do provide additional incentive and we are considering offering additional funding to help businesses make improvements.

**Information and behavior change.** One of the challenges that staff are still experiencing is ensuring that businesses and residents know about the programs, funding, and opportunities that are available to them. Often, businesses and residents are willing to make energy efficiency improvements, however their lack of knowledge is a barrier. We are working to overcome this barrier through our ClimateSmart campaign. Additionally, we are attempting to connect to community leaders to encourage them to spread the message through their channels.

Another challenge realized through the first year of administering these programs is that reductions can be achieved through simple behavior changes that can be difficult to communicate to residents. While many of our messaging campaigns focus on these types of changes, providing direct feedback on impacts of certain behavior changes can be much more useful. Pilot programs using whole house energy meters with displays that provide instant feedback on energy consumption are being explored to overcome this barrier.

**Data acquisition.** Due to the visibility of the CAP tax, data on the results of our programs are often requested by the community and City Council. However, at this early stage of CAP implementation, this can be a challenge to obtain due to the time lapse that often exists between audit/information sharing and actual implementation. Also, we do not always know when businesses or residents implement energy efficiency improvements, making it difficult to measure savings. Accurate representation of both the financial and non financial benefits is imperative to communicate to the community. We are constantly reviewing data to ensure we can provide accurate measures to the community.

**Meeting the goal.** Local conditions have changed enough since the CAP was written to recognize that the current strategies will not bring Boulder to meet the GHG emissions reduction goal. Recent analysis shows the breakdown of GHG emissions reductions based on current strategies (Table 3). The CAP assumed programs and services would be expanded over time to enhance progress toward the goal of a 22% reduction from 2006 emissions levels. The current programs and service levels are estimated to result in emissions levels that are short of the goal by about 48%.

Preliminary analysis conducted in early 2008 explored ways to expand current strategies in order to meet the GHG emissions reduction goal. This analysis revealed the potential for reaching 85% of the goal with increased budget and expanding existing programs. Table 3 summarizes the GHG reductions associated with each CAP strategy and the percentage of the 2012 goal achieved both on the current trajectory and with possible expansion of the current

strategies. The energy efficiency strategies include both residential and commercial programs, Xcel DSM reductions, and both residential and commercial codes. The renewable energy section includes wind power purchases, rooftop solar photovoltaics (PV), the expanded Colorado renewable energy standard (RES), and city-generated renewable energy. The transportation category includes reductions from biofuels.

**Table 3. Current Ghg Emissions Reductions By Strategy and Possible Expansion Using Current Strategies**

Strategy	Current		Possible Expansion	
	mtCO2e by 2012	% of Current GHG Goal	mtCO2e by 2012	% of Current GHG Goal
Energy Efficiency	29,049	7%	145,829	36%
Renewable Energy	172,366	42%	176,147	43%
Marketing	10,150	2%	20,300	5%
Transportation	3,940	1%	3,940	1%
<b>TOTAL</b>	<b>215,505</b>	<b>53%</b>	<b>346,217</b>	<b>85%</b>

Source: Bruno et al. 2008

The possible expansion of current programs still leaves a shortfall of 15% to meet the GHG emissions reduction goal. The city is taking a step back from expanding current strategies to conduct more research, collaborate with local partners, and evaluate new strategies to meet the goal. It is challenging to step back from the current trajectory since so many efforts are already in motion; especially since achieving emissions reductions through energy efficiency and renewable energy require information and time for property owners to incorporate investments into their budgets. However, it is important that the CAP team stays connected to other possibilities for reducing energy use and be prepared to adjust the course when more information is available.

### **On the Horizon: Ideas for the future**

At a recent City Council retreat, a majority of Council members indicated an interest in "accelerating" or being more aggressive in achieving the CAP goals (Bruno et al. 2008). While current analysis showed that the city would not meet its current goal, the city is currently exploring new possibilities to increase emissions reductions achieved in the coming years, including researching various regulatory options. This section introduces some of the possible paths.

**Codes.** Since the approach in the CAP of facilitating voluntary investment in efficiency may not provide desired emissions reductions levels, policy approaches may be necessary. As a result, there are a number of policy options the city is currently considering. These options could include requiring annual energy use disclosure to tenants during the leasing process, requiring energy assessments and providing a report to prospective tenants, and requiring specific energy performance enhancing measures be installed in a property over time. Each of the options has pros and cons with the first two serving as largely educational or awareness building tools. The third option that is in place in several similar communities is a residential energy conservation

ordinance (RECO). Because fewer utility incentives are available to the residential sector, a regulatory approach, likely complemented with financial assistance, may be desirable (Bruno et al 2008). Preliminary analysis shows that by implementing a RECO in 2009, GHG emissions reductions would equal 29,772 mtCO<sub>2</sub>e by 2012 (Bruno et al. 2008)

Commercial Green Code Development in both new and existing buildings is also in the early phases of research in the city. Boulder County's SEP states that implementation of codes for commercial construction could result in nearly 70,000 mtCO<sub>2</sub> of emission reductions by 2012 (Boulder County 2007). These reductions would be a result of codes that focused on increasing efficiency in lighting and heating/cooling.

**Social marketing.** Through the CAP work, awareness has grown that traditional marketing strategies are not effective when communicating about behavior change and environmental issues. With education about behavior change such a necessary element to successful energy conservation, the strategies to approach this must be novel. The CAP strategies are moving towards exploring theories on Social Marketing based mostly on the work by Doug McKenzie-Mohr (CITE) in his book *Fostering Sustainable Behavior*. Highlights include finding thought leaders in the community and engaging them through their current goals, exploring barriers to action through in-depth focus groups, and using concepts such as prompts to stimulate action, and 'norming' to encourage behavior change when an action becomes more of a social norm (McKenzie-Mohr and Smith 1999). The city is working closely with Boulder County and a private consultant to create a plan for social marketing outreach efforts.

**Financing.** Another strategy under exploration is providing a financing mechanism to help residents invest in energy efficiency and renewable energy. Inspired by the Berkeley, CA model under development, the City and County are working with a consultant to develop a plan to offer low interest loans, funded through municipal bonds and collected via property tax. This mechanism would allow the loan to stay with the property where the improvements were made and with most energy efficiency improvements, the cost of the loan payment would be less than the energy cost savings of the measures implemented.

**Carbon credits – Climate Trust.** The Governor's Energy Office (GEO) is beginning to implement a Colorado Carbon Fund for Colorado based carbon offsets. Working with the Climate Trust, GEO will be establishing a market for Colorado offset programs related to direct emissions reductions. This Fund will likely spur investment in energy efficiency programs because the Fund will be purchasing the efficiency credits. The funds generated from these projects will continue to be invested in Colorado efficiency programs, providing additional funding for projects and reducing paybacks. The city of Boulder is one of eight communities throughout Colorado playing an active role in this project.

## Conclusion

CAP efforts in 2008 and beyond will focus on expanding education, outreach, market transformation, and collaboration with partners to work towards an energy efficient economy. The CAP team will continue to evaluate the GHG reduction potential of programs and policies as they emerge in the quickly changing climate of energy programs. It is an exciting time to engage with the energy economy; growing awareness and movement towards expanded energy

programs are paving the way for wide-spread impact, as more and more cities model sustainable action perhaps a federal policy can take this country to the next level.

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